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UNDP/IBPGR EUROPEAN COOPERATIVE PROGRAMME
FOR
CONSERVATION AND EXCHANGE OF CROP GENETIC RESOURCES
PHASE II

REPORT OF THE THIRD MEETING OF THE
TECHNICAL CONSULTATIVE COMMITTEE
Reykjavik, Iceland, 17-19 December 1985

INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES
Rome, 1986

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INTRODUCTION

The Technical Consultative Committee (TCC) held its third meeting in Reykjavik, Iceland, 17-19 December, 1985, by kind invitation of Dr. Thorsteinn Tomasson, Director of the Agricultural Research Institute.

A list of participants is shown in Appendix I. Apologies for absence were received from Dr. H. Skov (Denmark) and Prof. L. Kahre (Chairman of IBPGR: Prof. J.T. Williams represented the Board of IBPGR). Dr K. Temiz (Turkey) and Prof. E. Porceddu (Italy), although invited, did not attend.

The Committee elected Mr. G. Jenkins as Chairman. The Agenda, as approved, is shown in Appendix II.

Dr. Thorsteinn Tomasson welcomed the TCC and Prof. Williams, in his capacity as Executive Secretary of ECP/GR, in an introductory statement, outlined the tasks of the meeting. Since the meeting will be the last to take place in Phase II of ECP/GR and an evaluation of the programme has to be made for submission to UNDP, FAO, IBPGR and participating governments, it was felt that the TCC could perform this task. Proposals for the implementation of Phase III have also to be formulated. Mr. P. Prins, UNDP Director for Europe, explained that this mechanism would provide an effective and economic way of producing an evaluation, which in view of the relatively small UNDP input to this project, should be acceptable to all parties. The meeting nominated a small Evaluation Panel (see Appendix VI) to draft a report for consideration and approval of the TCC.

REPORT

Review of activities of Phase II

1. The Committee established, from among its members, six subgroups charged with considering in detail the work carried out by the six Working Groups of Phase II and to assess progress and summarize this for the Committee. The main findings are itemized below. (The full texts of the subgroups deliberations are provided in Appendix III).

Barley. The European Barley Data Base (EBDB) at Zentral Institut für Genetik und Kulturpflanzenforschung (ZIGuK), Gatersleben, GDR now includes 50,000 accessions from 25 collections in 21 countries. A methodology for identification of duplicates has been established and the major information requirements of barley breeders from the data base have been identified. It was agreed that substantial progress had been made. All countries have taken action to provide passport data to the EBDB.

Prunus. The European Prunus Data Base (EPDB) has been established at Nordic Gene Bank (NGB), and a first edition of catalogues for almond, apricot, cherry, plum, pears, rootstocks and wild species were available. 9,000 accessions are included. Descriptor lists have been published and rescue collecting of threatened germplasm had been initiated in seven countries. The Committee agreed that the work had been conducted in a very realistic way and the results are impressive. There is no major urgency to sort out duplicates because they may represent only about 15%.

Forage. Nine European forage data bases: (Poa spp. at Braunschweig Genebank (BGRC), Federal Republic of Germany; perennial Medicago at Groupe d'Etude et de Contrôle des Variétés et de Semences (GEVES INRA), France; Bromus spp. at Research Centre for Agrobotany (RCA), Taposzele, Hungary; annual Lolium, Phalaris spp. and Vicia spp. at Germplasm Institute (CMR), Bari, Italy; Dactylis spp. and Festuca spp. at Plant Breeding and Acclimatization Institute (IHAR), Radzikow, Poland; annual Medicago spp. and Trifolium subterraneum at Agricultural Research Service (INIA), Badajoz, Spain; Phleum spp. at Mordic Gene Bank (MGR), Sweden; Trifolium pratense at Federal Agricultural Research Station (RAC), Changins, Switzerland; Lolium multiflorum, L. perenne and Trifolium repens at Welsh Plant Breeding Station (WPBS), Aberystwyth, UK), representing 15 species or group of species, are now established and have produced preliminary catalogues. In addition, two IBPGR descriptor lists had been produced, respectively for grasses and legumes. The Working Group's proposals for collecting had proved to be over-ambitious in its timetabling, although several countries had organized rescue missions. It was judged that considerable progress had been made.

Allium. An European data base (National Vegetable Research Station, NVRS, UK) has been established and a first print-out contains data on 3000 accessions from 12 countries. Two designated collections for Europe have been established, one for base storage of seeds in RCA, Hungary, and one for vegetative material with long-day requirements in Research Institute of Vegetable Growing and Breeding, Olomouc, CSSR. Significant gaps remain to be filled before a comprehensive network can be said to exist. The priorities for collection defined by the Working Groups had been only partly fulfilled.

Sunflower. Two European data bases, one for cultivated sunflower (CRI, Szeged, Hungary) and one for wild sunflower (Institute for Field and Vegetable Crops, IFVC, Novi Sad, Yugoslavia) had been established and preliminary European lists are available. A sunflower descriptor list has been published. Collaboration was established with the FAO European Sunflower Network and institutions outside the ECP/GR e.g. USDA/ARS, USA, Fundulea, Romania and VIR Leningrad, USSR. It was concluded that the work stemming from recommendations of the Working Group had been most effective.

Avena. An European data base at BGRC/FAL, Braunschweig, FRG has been established and presently contains the data from about 50% (12 collections in 11 countries) of known collections. An Avena descriptor list is in press. Collecting of wild material has been organized and then subsequent characterization/evaluation initiated.

2. An IBPGR status report on the importance of collecting Rhizobium concurrently with its symbiotic host legume in temperate and Mediterranean areas was tabled. This had been requested by the second meeting of the TCC. Appreciation was expressed to Mr. E. Davies, the IBPGR Forage Officer and the TCC agreed that the report should be passed to the Forage Working Group for further action.

3. The Secretariat informed the meeting on progress in compiling the third edition of the European Directory, which should be published by Summer 1986.

4. The achievements in training were considered satisfactory (see Appendix IV). It was pointed out that the main emphasis had been given to documentation and this was understandable and desirable. It was noted that Working Groups had identified more needs for training than had actually been requested. The members from Czechoslovakia, Greece, Yugoslavia and Poland expressed their gratitude on behalf of the IPF countries for the support they had received for training; as a result the trained personnel would be directly involved in helping the ECP/GR programme in the future.

Survey on In Situ Conservation of Crop Relatives

5. Dr. Williams presented the results of a study on the distribution in Europe of selected wild species, Prunus, Malus, Allium as well as two forage species (see Appendix V). The report was prepared by the Secretariat following a recommendation of the TCC in 1984. A number of organizations collaborated: IUCN; MAB Programme of UNESCO, Paris, France; Flora Europaeae Office, University of Reading, UK; Museum National d'Histoire Naturelle, Paris, France as well as a number of individual scientists. The distribution of reserves were mapped but unfortunately, due to administrative constraints, the maps could not be tabled at the meeting. Several constraints on the acquisition of reliable information were emphasized:

- (i) less than 10% of protected areas have lists of plant species.
- (ii) almost no ecological information associated with species distribution is available.
- (iii) no data exist on population variability.

The report stressed priority needs to survey, in particular in Turkey, Greece, Italy and Yugoslavia, and with lower priority, to survey in S. France, Bulgaria, Switzerland, Spain and Israel. The Committee agreed that the report revealed major problems in coming to terms with the scientific issues involved in in situ conservation and that in doing so it had made a significant contribution to this field of work.

6. It was recognized that the priorities for the numerous nature conservation organizations did not accord with genetic resources priorities. The Committee considered at length the means to encourage and promote studies on distribution, genetic variability, ecology and related factors of wild relatives of crops. This is an enormous task and it implies a multi disciplinary approach. The need for such an approach was exemplified by a recent study on the biological structures of native populations of wild emmer wheat in Israel. This involved 15 scientists from different institutes and only treated a specific aspect of in situ conservation. The Committee agreed that such large projects are outside the present funding possibilities of the ECP/GR.

7. The Committee was of the opinion that high priority for field survey and study should be accorded to populations of fruits in Greece, Italy, Turkey and Yugoslavia where many species show specific/limited distribution. Nonetheless the Committee recorded that in many of these countries there are insufficient local specialists to carry out the work.

8. The TCC therefore concluded that ECP/GR should urge Governments to initiate actions on in situ studies and this should not be restricted to those species listed in Appendix V para. 2. Additionally, the Prunus Working Group should be asked to consider possible forms of collaborative action on the Prunus gene pool and to provide a conceptual base which could be applied to other crops or groups of species.

Proposals for Phase III

9. The TCC reviewed priorities for the crops which should receive attention using the established criteria of economic importance, the presence of a significant European gene pool and the threat of genetic erosion. In addition to the six crops dealt with in Phase II, these included Beet, Brassica, Citrus, Cotton, Lupinus, Maize, Phaseolus, Pisum, Potato, Secale, Tobacco, Vicia faba, Vitis.

10. It was agreed that the following should not be included:

1. Citrus, Cotton: the primary gene-pools are not European and few countries out of the 26 members had major interest in these crops. IBPGR is already taking care of necessary international coordination.
2. Lupinus: primary gene-pool for grain forms is outside Europe and adequate collecting of Mediterranean forms is taking place. Actual problems are connected to breeding rather than conservation. An international organization (Asociation Internacional del Lupino) already exists and considers genetic resources.
3. Maize: the primary gene-pool is outside Europe; secondary diversity is widely used and a FAO sub-network on genetic resources has been implemented.
4. Potato: EEC activities on old cultivars are on-going and the primary gene-pool is outside Europe.
5. Tobacco: primary gene-pool outside Europe and the Committee did not wish to see priority accorded to this crop.
6. Vicia faba: comprehensive collections exist; ICARDA has assumed a major responsibility.

11. Secale had a Working Group of ECP/GR in Phase I and in Phase II, although in the latter case no support was provided due to lack of funds. No major gaps in collecting are currently identifiable. The work of the Polish genebank in establishing a data base and producing a catalogue was much appreciated, and the continuation of this work was recommended. It was also recognized that immediate problems relate to breeding rather than to conservation. In addition, it was recognized that the wider gene-pool is found in Turkey and, in accordance with the philosophy of ECP/GR, it is the responsibility of national programmes to conserve their own gene-pools.

12. Detailed discussion took place on Beet, Brassica, Phaseolus, Pisum and Vitis.

Beet. There are limited collections of beets in Europe and there is concern for collecting vegetable beets as well as beets forming part of the sugar beet gene-pool. Regeneration is difficult and the number of regenerated accessions is insufficient, as well as the number of seeds in each. It was noted that Greece has taken major action on wild material and there is likely to be bilateral cooperation between the Netherlands and the Federal Republic of Germany on beet genetic resources, starting in 1986.

Brassica. There is serious genetic erosion of local types of cultivated forms as well as of wild species. IBPGR supports a programme for collecting the wild populations around the Mediterranean basin and this will be continued. The former EEC Group has defined a detailed programme for cultivated forms but, unfortunately, this organization has not provided more funds for this activity.

Phaseolus. Genetic erosion was recognized for landraces of all the central and south-east European countries. The TCC thought action was the responsibility of the particular Governments.

Pisum. See paragraph 15.

Vitis. Severe genetic erosion of this European gene pool is occurring and collecting is needed particularly in the Mediterranean. It was noted that maintenance of clones and storage of seeds are complementary and that no genebanks were adequately conserving seed samples. Bulgaria, Greece and Israel have taken action on Vitis genetic resources and other countries have expressed their interest.

13. After lengthy debate, taking into account financial constraints, it was agreed that none of the group of crops mentioned above should have a formal Working Group in Phase III, despite the recognition of problems to be solved, particularly for Beet, Vitis and Brassica. However, it was strongly recommended that coordinating action be taken by the Secretariat on an ad hoc basis. This will assure flexibility necessary to adapt to changing situations and cost-effectiveness within the limitations of the budget.

14. The TCC requests Governments to provide full support for the initiation or continuation of action for the crops listed in paragraph 13, especially to organize rescue collecting of the material under threat.

15. Pisum was a Working Group of ECP/GR in Phase I and in Phase II but in the latter case no support was provided due to lack of funds. Extensive, well-documented collections have been established but concern was expressed about the future maintenance of two of them. The Secretariat was requested to take appropriate action.

16. The positive progress of the existing six Working Groups was recognized (see paragraph 1). However, much still remains to be done to achieve a truly collaborative network serving the users. Therefore it was decided that the six Working Groups should remain active and be fully supported in Phase III. Meetings should be convened only when strongly justified after assessment of progress and following recommendations of the second meetings of each Working Group.

17. Recommendations for the reinforcement of ongoing activities/eventual changes in orientation or emphasis of the six Working Groups were agreed as follows:

Barley. The EBDB will be expected to completely fulfil its duties towards national genebanks and users for provision of complete passport data and selected characterisation data by 1988.

The report of a Barley Workshop held at ZIGuK, Gatersleben, was examined and the report was referred to the Working Group for detailed consideration. There was a general consensus on the following points:

- a) National genebanks should start to procure the characterisation/evaluation data requested by the Workshop
- b) Governments should fully support their researchers engaged in the establishment of reference collections categorized by disease resistance phenotypes, taking as an example the Plant Breeding Institute, Cambridge, UK, for mildew

- c) The screening for the character combination short straw/long roots was of the utmost interest, but should be addressed to the community of breeders rather than curators.

Prunus. The publication of complete catalogues of passport/characterisation/evaluation data as proposed by the second meeting of the Prunus Working Group, is expected in 1987. This will be a milestone in the activities of the Working Group and from this stage the Working Group will have to encourage more study on variation patterns and wild species including in situ studies on the Prunus gene pool.

Governments should be requested to nominate national germplasm liaison officers for Prunus as recommended by the Working Group. Crop Coordinators should also receive from their respective Governments all necessary recognition and support as soon as possible.

Forages. The European forage data bases will integrate an adequate amount of data by the beginning of 1987 to render full services to users. The TCC encouraged the Working Group to identify and then carry out new selective collecting following careful analysis of data existing in data bases and from herbarium specimens and literature in order to evolve an eco-geographical approach. It also stresses the need for a firm commitment from national programmes to support the expansion of existing collections by the incorporation of newly collected material.

Allium: The Committee urged that the curators of the Allium collections which are still not yet participating in the activities of the Allium Working Group should send passport data as soon as possible in order that the European Allium data base may be comprehensive and fully operative by 1987. Ambitious targets had been assigned for collecting by the first meeting of the Working Group, Phase II, and it was strongly recommended that these objectives should be met during Phase III. The continuation of the activities will have to be re-scheduled by the second meeting of the Working Group and in addition, the TCC requests this meeting to identify potential third country quarantine facilities for exchange of vegetative material with disease indexing and cleaning up of stocks.

Sunflower: The European sunflower data bases should achieve the objectives assigned by the first meeting in 1986 and the TCC expected the Working Group, second meeting, to recommend an adequate programme of activities for Phase III. The collecting of wild material should be continued through the international work of IBPGR.

Avena: The European Avena data base should receive sufficient data by the end of 1986 in order to start services to users. It was recommended that due attention should be paid in Phase III in respect of short term priorities for breeding. Contrary to the opinion of the Working Group's first meeting, the TCC thought that strong genetic erosion of some landraces is occurring in some countries due to rapid contraction of the cultivated area (Greece, Yugoslavia and Poland) and requests the Working Group to examine this problem again. It was emphasized that collecting and studies on the wild Avena gene pool should both continue as this is of primary importance for future developments in oat breeding.

18. Full support of Governments to activities of their European data base is a prerequisite to the effective and timely operation of Phase III of the Programme.

19. Governments are also requested to provide full support for other specific input-in-kind identified by the second meeting of the Working Groups without which a Phase III is not justified.

Preliminary responses from governments concerning Phase III

20. Whereas all member Governments have in the past approved the need for a Phase III, 11 countries, namely Austria, Belgium, Federal Republic of Germany, Finland, German Democratic Republic, Greece, Ireland, Poland, Switzerland, Turkey and United Kingdom had formally declared their support for the implementation of Phase III. All were favourable and agreed that a coordinating body was necessary and that this should be continued under aegis of IBPGR. Four of these countries (Belgium, Ireland, Finland, Switzerland) had indicated that they would be ready to contribute an annual sum for the three years of Phase III equivalent to that paid for the last year of Phase II.

21. The meeting received informal information about the intentions of the following:

- UK will contribute a funding equivalent to Phase II on the condition that other countries will join the Programme.
- Czechoslovakia will contribute to Phase III with same annual cash amount which they gave in the last year of Phase II
- Denmark, France, Greece, Iceland, Israel, Netherlands, Norway, Sweden, Yugoslavia have indicated that they expect to participate
- Federal Republic of Germany indicated that inputs-in-kind would be provided, but no information could be given regarding the cash contribution.
- The German Democratic Republic and Poland are ready to provide substantial inputs-in-kind but have difficulties in contributing in cash.

22. Members from certain countries not only indicated their readiness to provide inputs-in-kind, as requested by the Working Groups, but also gave a list of additional inputs they seem prepared to make. The Netherlands is ready to act as a European data base should the need arise and Poland is prepared to organize meetings as well as to take more responsibility for documentation.

23. It was agreed that the IBPGR should send with this report of the TCC, a letter requesting firm commitments from Governments. Participation in Phase III of ECP/GR will be formally achieved by signature of a Letter of Agreement.

24. It was agreed that a TCC should be convened towards the end of Phase III to make an assessment of achievements. In the meantime the Secretariat is asked to send annual progress reports to all participating countries in which changes of direction in activities should be itemized and justified.

Any Other Business

25. The meeting noted the Nordic Genebank's duplicate store in permafrost in Svalbad. Details will be finalized by the NGB and the IBPGR so that space for duplicate collections can be fully international in accordance with IBPGR designations.

26. It was requested that all European data bases should duplicate their data for storage at another safe location. When data bases are fully operational it is recommended that they should, as a matter of routine, make their data available in magnetic form to all collaborating genebanks.

27. The TCC expressed formal thanks to the UNDP for its support of ECP/GR. UNDP through its representative noted that this project had been gratifying and really a model in the sense that Governments had already started cooperation in the first 2 phases and were determined to carry on the activities. The UNDP assistance comes to an end. Mr. Prins asked Dr. Pencic to convey the meeting's appreciation to Mr. Makiedo who had been active in establishing the programme.

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AGENDA

1. Opening statements
2. Election of Chairman
3. Adoption of Agenda

EVALUATION OF PHASE II OF ECP/GR

4. Barley Working Group Activities
 - 4.1 Review of progress in implementation of recommendations of the first meeting.
 - 4.2 Report on the Barley Workshop held at Gatersleben, DDR, 19-20 November 1985.
5. Prunus Working Group Activities
 - 5.1 Review of progress in implementation of recommendations of the first meeting.
 - 5.2 Report on the Prunus Working Group second meeting held at Firenze, 22-24 October 1985.
6. Forages Working Group Activities
 - 6.1 Review of progress in implementation of recommendations of the first meeting.
 - 6.2 Report on the second meeting held in Carlow, Ireland, 8-10 October 1985.
 - 6.3 Report on the Importance of Collecting Rhizobium concurrently with its symbiotic host Legume in Temperate and Mediterranean areas.
7. Allium Working Group Activities
 - 7.1 Review of progress in implementation of recommendations of the first meeting.
 - 7.2 Provisional Agenda and result on survey to Allium breeding information needs for the second meeting of the Working Group, Olomouc, 7-9 January 1986.
8. Sunflower Working Group: review of progress in implementation of recommendations of the first meeting.
9. Avena Working Group: review of progress in implementation of recommendations of the first meeting.

10. Third edition of the European Directory.
11. Achievements in training.

IN SITU CONSERVATION

13. Report on survey on in situ conservation of crop relatives.
14. Future action.

PROPOSALS FOR PHASE III

15. Preliminary responses from governments concerning Phase III.
16. Objectives for Phase III.
 - 16.1 Continuation of the work of the Working Groups.
 - 16.2 Other objectives e.g., additional Working Groups, in situ conservation, etc.
17. Organizational framework for Phase III and budget.
18. Practical aspects and legal questions for the implementation of Phase III.

OTHER ITEMS

19. Any other business.
20. Drafting of evaluation report and recording of decisions reached by the meeting.
21. Consideration of report(s) and approval by Technical Consultative Committee.

APPENDIX III

EVALUATION OF THE SIX WORKING GROUPS OF
PHASE II, BY SUBGROUPS OF THE TCC

BARLEY

1. Review of activities

Following the identification of ZIGuK, Gatersleben as the lead institute for the cooperative work on barley a meeting held there in May 1983 outlined the broad recommendations for the activity of the Working Group. More recently a Workshop had met in Gatersleben in November 1985 to attempt to identify the requirements of barley breeders from germplasm collections. A Workshop on practical aspects of exchange of information (held at Radzikow) had substantially contributed to the practical information handling of the barley genetic resources of Europe.

The TCC had discussed the report of the first Gatersleben meeting of 1983, had received the report of the Workshop of 1985 and a 'Review of Progress' was circulated by the secretariat and tabled as paper 2 at the present meeting. Computerization of barley data was somewhat delayed because the necessary hardware was only installed in June 1985. In association with ZIGuK, Dr. S. Blixt, Landskrona, Sweden, had helped to compile the data sent on magnetic tapes into a more readable form. Considerable progress was made in the compilation of the European Barley Database (EBDB), even though information is still awaited from a few countries.

2. Realization of objectives and outputs

Broadly speaking, the group had set its objective as 1) the creation of a European Barley Database (EBDB) by collating and centrally computerizing the available information received from the participating countries and from this 2) a definitive European Barley List (EBL) can be printed. The EBDB had been separated into:

- a) a section for named accession
- b) collected material
- c) wild species

Several addenda had also been produced listing various acronyms used. In total 49,767 accessions from 25 collections in 21 countries were included in the EBDB by October 1985.

3. Conclusions

The barley group had made substantial progress in achieving the compilation of the EBDB. It is clear that many duplicates exist within barley collections and a procedure needed to be adopted for their identification. It is intended that the Working Group will reconvene in May 1986.

It is not anticipated that there should be a fundamental change of direction in Phase III since much still remains to be done in the rationalization of the EBDB.

The interaction between the EBDB and barley breeders is likely to pose a number of problems e.g. if breeders are to feed-back large numbers of evaluation data to the EBDB the computer facilities at Gatersleben will not be able to cope with them.

It seems probable that extensive evaluation data will be best stored in national databases or breeders individual data bases and that generalized statements only need to be reflected in the EBDB.

PRUNUS

1. Review of activities

The Prunus Working Group had met twice (1983 and in 1985). It appears that the programme identified in 1983 has been realized on time. The quality of the work conducted in a very realistic way by the Prunus Working Group is impressive.

2. Realisation of objectives and outputs

11 crop coordinators have been appointed to collate and sort out the required information from collections.

An European Prunus data base, of which prints are available, has been established in the European Prunus. This includes about 7,000 accessions; the data on European cherry collection, previously computerized by the Polish gene bank, will be added to the Nordic Gene Bank (NGB) database in the near future.

Descriptor lists have been finalized and published; they are comprehensive but as simple as needed. Collection missions have been actively conducted in several countries.

Registration: for commercial varieties and wild forms, only passport data will be included in the central data base; a set of characterization/evaluation descriptors will be registered only for non-commercial cultivated types.

Crop coordinators will continue to make links between the curators and the European Prunus data base; it is recommended that each crop coordinator establish a computerized data base.

A first edition of the crop catalogues (magnetic tapes and prints) will be distributed by NGB in 1987.

Conservation: the national responsibility in maintaining local resources is clearly recognized; it is recommended that each country nominate a liaison officer to coordinate national activities on Prunus.

The development of IBPGR interest for studies on long-term conservation of seeds on in vitro, buds and pollen is welcomed.

The importance of conserving and using wild forms of crops and of non-cultivated related species is underlined; several cooperative programmes of study, involving botanists, are necessary and in situ conservation should receive more attention.

3. Conclusions

For the future, attention is drawn to wild forms or species which must be protected, but also studied in situ (ecological areas, size of populations, diversity of characters, genetical structure, ecotypes, differentiation, host/pathogen relationship, etc.). It might be a long term programme, involving traditional botany as well as molecular biology, and oriented towards both agriculture and environment.

FORAGE

1. Review of activities

The Forage Working Group was established in February 1984 and it met in Larissa (Greece). A second meeting of the group took place in Carlow, Ireland, in October 1985.

The FCC had been presented with reports of both meetings. Computerization of forage data was conducted between the two meetings with several institutes in Europe acting as central data bases.

The group has worked out descriptor lists for both grasses and pasture legumes in cooperation with IBPGR and the European Economic Community (EEC).

Considerable progress has been made in locating forage collections in Europe and compiling passport data from these collections.

2. Realization of objectives and outputs

In total 9 Forage Data Bases (FDB), proposed by the first Working Group, representing 15 species were successfully established with the inclusion of at least the minimum (8) agreed passport descriptors. Three additional FDB were proposed by the second meeting and the Group was optimistic about their being accepted by the institutes proposed.

All established databases have successfully produced preliminary catalogues including the minimum agreed passport descriptors. On the basis of available data it would seem that there are only few nominal duplicates between the collections covered (10-15%), and therefore any efforts towards rationalization of collections would be unwarranted. The original forages descriptor list covered both grasses and legumes. Following recommendations of the first Working Group's meeting the list was split into two, finalized and published. The second meeting proposed certain additions to cover regeneration and eco-geographical data.

The original programme planned for collecting proved to be over-ambitious. However, several countries collected forage material within their own borders.

3. Conclusions

It is anticipated that the Forage Data Bases will extend their coverage in terms of both numbers of collections covered and number of descriptors included. European catalogues including more descriptors are planned. Updates of these European catalogues would only be needed if there were substantial changes in collections or available data.

It is anticipated that the targets set by the Working Group for collecting material now considered in danger of extinction will be met during phase III. Any future collecting should be based on the analysis of the material available in existing collections in relation to known distribution of the species. This implies use of the FDB's to produce maps of distribution relative to eco-geographic regions, and herbarium and literature studies to determine reported distributions of these species. The second Working Group's meeting emphasized the need to obtain a firm commitment from national genebanks to support maintenance of existing collections on an on-going basis.

A successful training course was held in Aberystwyth, UK. No further courses are planned, but training will be addressed on an ad hoc basis.

ALLIUM

1. Review of activities

The Allium Working Group was established in May 1984 in Tapioszele, Hungary, and will meet in January 1986 in Olomouc, Czechoslovakia.

2. Realisation of objectives and outputs

A network was established with specialists in 13 countries. However, significant gaps still exist in spite of the efforts of the Secretariat and Working Group members to identify the relevant scientists in these countries.

Data were received from 12 countries, totalling 2,966 accessions (data from Israel relating to 221 Allium accessions had just been received). Although all these data were received from national coordinators or crop specialists there was no indication as to their representation of the total holdings of countries.

The priorities for collection defined by the Working Group were only partly acted upon. Within EEC countries, only commercially available material was collected. The collection of landraces in EEC countries and other unfulfilled priorities should be vigorously promoted at a national level.

3. Conclusions

In vitro techniques will be discussed by the Working Group in Olomouc following the publications of a report on in vitro techniques for Allium conservation by the Hebrew University of Jerusalem. Discussions might well lead to new recommendations for phase III.

A Workshop on isozyme studies will take place in Warsaw in June 1986 under the auspices of the EUCARPIA Section Genetic Resources. It is recommended that speakers with experience with Allium in this field present their work at this Workshop.

Although the Working Group could foresee no major constraints to the exchange of material in relation to quarantine regulations, several problems have arisen in the practical attempts to exchange vegetative material. The transfer of vegetative material should be accomplished through a third country quarantine system. This option could include 'cleaning' the material via meristem culture. Either disease free regenerated plants or differentiated material in culture could be used for exchange purposes. These methods and their practical utilization should be assessed for inclusion in phase III.

Training needs to be promoted in all the areas which were defined by the Working Group. Taxonomy and the techniques for dealing with vegetatively propagated material should be especially promoted.

SUNFLOWER

1. Review of activities

The group held its first meeting in July 1984 at the Institute of Field and Vegetable Crops (IFVC), Novi Sad, Yugoslavia with participation of 10 European countries.

The draft sunflower descriptor list was submitted to sunflower scientists all over the world for comments and it was published by IBPGR in summer 1985. The CMEA Committee for Genetic Resources recommended the use of the IBPGR sunflower descriptor list to its members.

Following the recommendation of the first meeting the Chairman of the Sunflower Working Group participated with IBPGR support in a wild sunflower collecting mission in USA organized by the USDA-NPGS in October 1985.

2. Realisation of objectives and outputs

Two European data bases, one for cultivated sunflower and one for wild material, were established respectively in the Cereal Research Institute (CRI) Szeged, Hungary and IFVC, Novi Sad, Yugoslavia.

The two sunflower data bases have prepared draft preliminary European lists using data provided by the majority of the sunflower germplasm centres. Most of the data included in these lists has already been checked by originators and the work is continuing.

It is gratifying that the Working Group established collaboration with institutions outside ECP/CR, e.g., USDA, VIR Leningrad and the FAO European Research Network on Sunflower.

3. Conclusions

It is concluded that the Working Group has been working efficiently from the beginning. The IBPGR descriptor list was published after a worldwide circulation. Passport data have been collected from all the main sunflower germplasm centres and two draft preliminary European lists were prepared.

IFVC Novi Sad should also serve as a documentation centre but until now no papers or references have been received by the institute.

It is recommended that special attention be paid to phytosanitary measures during collecting missions and exchange of material. When possible a phytopathologist/entomologist should be included in the collecting group.

The attention of the Working Group should be concentrated first on identification of duplicates and secondly on the rationalization of the evaluation work using a limited number of selected accessions in the initial phase.

The documentation officer of IFVC Novi Sad has participated in the IBPGR/ECP/OR Workshop on Exchange of Information in Radzikow, Poland, and a Greek specialist was trained in IFVC, but there is a further need for training in most countries.

AVENA

1. Review of activities

The Working Group was established in September 1984 and proposed the full documentation of Avena germplasm as a first step in fulfilling the objectives of better conservation, characterization and documentation of oat collections.

2. Realization of objectives and outputs

The first step was the production of a preliminary European list based on minimum passport data, with the target date of January 1986. Because of the delayed supply of data to the central data base this date could not be respected, but completion is expected in mid-March 1986. It is clear from data received that about 50% of countries have responded and, for many of these, data are incomplete. Data have not yet been received from the following countries: France, Spain, The Netherlands, Israel, Portugal, Switzerland and the Nordic countries. Greater efforts are needed by country coordinators to stimulate the transfer of data to the central data base.

Passport data received by November 1985 have been compiled into a provisional, incomplete list which has been circulated. The present print out of the European Oat Data Base (EODB), Braunschweig, Federal Republic of Germany, includes information on 5,975 accessions from 12 institutions of 11 countries.

A draft descriptor list, worked out during the first Working Group meeting, was circulated to oat workers in and outside the European Programme, finalized and is in print. The central data base should identify a selected number of descriptors in order to increase efficiency and to increase the probability of cooperation by curators of collections.

3. Conclusions

It is expected that by March 1986 it should be possible to begin the integration of the European Oat Data Base with other significant data bases such as Canada or USA.

Regarding interest in oat, Middle-European countries show an increasing interest for cultivation of this field crop. To fit the needs of plant breeding, the material (landraces and older adapted varieties) listed in the preliminary European list and data base, respectively, should be evaluated in respect to relevant breeding characters to complete the European Oat Data Base in Phase III. It is recommended that the Working Group prepares a list of characterization and evaluation characters taking into account priorities for breeding.

Contrary to the opinion of the Working Group it seems that urgent rescue collecting for landraces and old cultivars still needs to be done in some countries, such as Greece, Poland and Yugoslavia.

In addition to training, workshops are recommended in order to strengthen the exchange of knowledge and to foster cooperation.

APPENDIX IV

ACHIEVEMENTS IN TRAINING

The six Working Groups recognized that training is important to execute their plans and recommended that the ECP/CR Secretariat should attempt to identify training needs, inter alia through Country Coordinators.

For Allium, Forage and Avena, centres which could host trainees were identified by the Working Groups. Additionally, the Barley, Forage and Avena Working Groups recommended group training.

The Secretariat attempted to identify training needs through letter to Country Coordinators, Institutes and through individual contacts during visits.

The achievements in training to date follow:

i) Individual training supported by ECP/CR through study tours/attendance at meetings or short courses.

I. Bares, Research Institute for Crop Production, Praha, Czechoslovakia, to Braunschweig genebank, Federal Republic of Germany. Colloquium on Plant Genetic Resources and visit to the genebank (2/12/85 to 11/12/85).

I. Dotlacil, Research Institute for Crop Production genebank, Praha, Czechoslovakia, to Birmingham University for genetic resources evaluation training (12/1/84 to 15/4/84).

G. Kontas, Cotton and Industrial Plants Institute, Thessaloniki, Greece, to Institute of Field and Vegetable Crops, Yugoslavia for familiarization with sunflower genetic resources (15 to 21/7/85).

K. Kostov, Institute of Introduction and Plant Genetic Resources, "K.Malkov", Sadovo, Bulgaria to Welsh Plant Breeding Station, UK for attendance at International Oat Symposium (14 to 18/7/85).

L. Nebli, Research Center of Agrobotany, Tapioszele, Hungary, to Institute for Horticultural Plant Breeding, Netherlands, for study on characterization and evaluation of Allium (5/8/85 to 5/10/85).

V. Makevitch, Maize Research Institute, Zemun, Yugoslavia to Nordic Gene Bank for study on documentation (Prunus and barley)(26/3/84 to 6/4/84).

J. Serwinski, Plant Breeding and Acclimatization Institute, Radzikow, Poland, to Welsh Plant Breeding Station and National Vegetable Research Station, UK, for study on documentation (4/3/85 to 3/4/85).

J. Valkoun, Research Institute for Crop Production, Praha, Czechoslovakia, to Birmingham University and Plant Breeding Institute, Cambridge, UK, for study on use of genetic resources from phytopathological point of view (13/11/85 to 23/11/85).

Z. Veress, Research Center for Agrobotany, Tapioszele, Hungary, to National Vegetable Research Station, UK, for documentation and transfer of Allium data (23/ to 29/5/84).

ii) Group training course under aegis of ECP/GR.

Collection, characterization and utilization of forages genetic resources, Welsh Plant Breeding Station, Aberystwyth, UK, 14-20/10/84.

D. Drousiotis, Agricultural Research Institute, Nicosia, Cyprus.

B. Cagas, Research Station of Grasses, Roznov, Czechoslovakia.

V. Vacek, Research and Plant Breeding Institute for Fodder Plants, Troubsko, Czechoslovakia.

H. Kontsiotou and T. Vaitsis, Fodder Crops and Pastures Institute, Larissa, Greece.

R. Kopyto, Department of Fodder Crops, HAR, Krakov, Poland.

W. Mąjtkowski, Plant Breeding and Acclimatization Institute, Radzikow, Poland.

J.M. Baeta and E. Bettencourt, National Agricultural Station, Oeiras, Portugal.

C.O. Sabanci, Aegean Regional Agricultural Research Institute, Izmir, Turkey.

D. Dumancic and S. Halavic, Institute for Breeding and Plant Production of Field Crops, Zagreb, Yugoslavia.

Workshop on exchange of information, Plant Breeding and Acclimatization Institute, Radzikow, Poland, 23-25 October 1984.

I. Lozanov, Institute of Plant Introduction and Genetic Resources "K.Malkov", Sadovo, Bulgaria.

N. Della, Agricultural Research Institute, Nicosia, Cyprus.

V. Rogalewicz, Research Institute of Plant Production, Praha, Czechoslovakia.

A. Zamanis, Greek Gene Bank, Thessaloniki, Greece.

Z. Veress, Research Centre for Agrobotany, Tapioszele, Hungary.

L. Gusmão, National Agricultural Station, Oeiras, Portugal.

M. Mihaljevic, Institute of Field and Vegetable Crops, Novi-Sad, Yugoslavia.

Application of Apple II microcomputer in genebanks.
Institute of Introduction and Plant Genetic Resources "K. Malkov",
Sadovo, Bulgaria, 21 25/9/85.

A. Della, Agricultural Research Institute, Nicosia, Cyprus.

V. Rogalewicz, Research Institute of Plant Production,
Czechoslovakia.

M. Stavropoulos, North Greece Agricultural Center, Thessaloniki,
Greece.

J. Baeta, National Agricultural Research Station, Oeiras, Portugal.

J. Serwinski, Plant Introduction and Acclimatization Institute,
Radzikow, Poland.

Trainees sent to group training course organized by IBPGR.

International training course on field collecting.

University of Jerusalem, Rehovot, Israel, 3/84 to 4/84.

B. Matzov, Institute of Plant Introduction and Genetic Resources "K.
Malkov", Sadovo, Bulgaria.

Documentation training course in Beltsville, USA, 5-24/8/84.

A. Rogalewicz, Research Institute for Crop Production, Praha,
Czechoslovakia.

Z. Veress, Research Center for Agrobotany, Tapioszele, Hungary.

Seed physiology for genebanks

Seed Bank, Royal Botanical Garden of Kew, United Kingdom, 14/7/84 to
4/8/84.

B. Molski, Botanical Garden, Polish Academy of Sciences, Warsaw,
Poland.

Genebank Management System Workshop.

Nordic Gene Bank, 23-25/11/84.

A. Bardy, Research Center for Agrobotany, Tapioszele, Hungary.

B.A. Molski, Botanical Garden, Polish Academy of Sciences, Warsaw,
Poland.

A. Tan, Aegean Regional Agricultural Research Center, Izmir, Turkey.

Temperate fruit germplasm training course.

University of California, Davis, 7-27/7/85.

D. Stoyanov, Institute of Introduction and Plant Genetic Resources
"K. Malkov", Sadovo, Bulgaria.

J. Blazek, Institute of Pomology, Holovouzy, Czechoslovakia.

C. Tsipouridis, Pomology Institute, Naoussa, Greece.

J. Gergely, Development Enterprise for Fruit and Ornamentals,
Budapest, Hungary.

T. Jakubowski, Research Institute of Pomology and Floriculture,
Skierniewice, Poland.

M. Gonülse, Aegean Regional Agricultural Research Institute, Izmir,
Turkey.

P. Lucic, Faculty of Agriculture, Sarajevo, Yugoslavia.

Seed Physiology and Handling of Genebanks.
Geneva, USA, 5-25/8/85.

L. Dotlacil, Research Institute for Crop Production, Praha,
Czechoslovakia.

M. Czuba, Plant Production and Acclimatization Institute, Radzikow,
Poland.

REPORT ON A SURVEY ON IN SITU CONSERVATION
OF CROP RELATIVES

INTRODUCTION

1. Following a recommendation of the Technical Consultative Committee of the ECP/GR in December 1984, a study was carried out on the distribution in Europe of wild species in the gene-pools of Prunus, Malus, Allium as well as two forage species. The study aimed at identifying the distribution of the species, the locations of reserve areas where in situ conservations might be achieved and to see if there are any major areas for further study.

2. The species studied were:

<u>Allium schoenoprasum</u> L.	<u>Prunus cerasifera</u> (Ehrh.)
<u>Allium ampeloprasum</u> L.	<u>Prunus cerasus</u> L.
<u>Bromus inermis</u> Leysser	<u>Prunus cocomilia</u> (Ten.)
<u>Festuca arundinacea</u> (Schreber)	<u>Prunus domestica</u> L.
<u>Malus dasyphylla</u> (Borkh)	<u>Prunus dulcis</u> (Miller)
<u>Malus domestica</u> (Borkh)	<u>Prunus fruticosa</u> Pallas
<u>Malus florentina</u> (Zuccagni)	<u>Prunus mahaleb</u> L.
<u>Malus praecox</u> (Pallas)	<u>Prunus persica</u> L. (Batsch)
<u>Malus sylvestris</u> (Miller)	<u>Prunus prostata</u> (Labill.)
<u>Malus tribolata</u> (Labill)	<u>Prunus ramburii</u> (Boiss.)
<u>Prunus armeniaca</u> L.	<u>Prunus spinosa</u> L.
<u>Prunus avium</u> L.	<u>Prunus tenella</u> (Batsch)
<u>Prunus brigantina</u> (Vill. in L.)	<u>Prunus webbii</u> (Spach)

3. The following organizations provided data:

- (i) IUCN (Plants Officer at HQ, Gland, Switzerland; Computer Monitoring Centre (CMC) at Cambridge, UK; Threatened Plants Unit of CMC at Kew, UK)
- (ii) MAB Program of UNESCO, Paris, France
- (iii) Flora Europaea Office, University of Reading, UK
- (iv) Musée National d'Histoire Naturelle, Paris, France

so did a number of individuals; all of whom are thanked. The biogenetic reserve network of the Council of Europe, Strasbourg was not able to provide information in time.

4. A series of maps were produced which summarize existing information

REPORTGeneral conclusions

5. Although Europe is extremely well-known botanically, in comparison with other regions of the world, data on species distributions are still not always available for local occurrences; nor have ecological parameters of the species in question been studied in depth. Hence whereas the broad distribution is known from the literature, information is not widely available on frequencies nor on population variability. From a genetic resources point of view there could well be genetic erosion which is not immediately identifiable. This would only be expected due to changes in land use and environmental degradation. Nonetheless to have the data on which to base any conclusions on genetic erosion will take many years of compilation of high quality field data from specified surveys.
6. Whereas protected areas overlap considerably with the species distributions it is impossible, at the present, to ascertain whether adequate populations are protected. Even where geographically protected areas overlap species distribution, protected areas are often very specific e.g. for mountain areas and hence it is not possible to assume in situ conservation. Most protected areas have not been properly inventoried for plant species and lists which do exist have not been computerized. Thus overlapping does not provide clear evidence for in situ conservation.
7. Ideally an eco-geographic data base is necessary for these species' gene-pools and this should be related to use in breeding programmes. It is suggested that crop experts carefully advise on the potential uses of the materials because detailed action would not be justified without real needs being quantified. The most pragmatic solution, in the meantime, is to assume that, in the main, nature conservation efforts will preserve adequate parts of the gene-pools. This suggests, however, that there should be better coordination between nature conservation efforts, crop genetic resources specialists, ecologists and field botanists. In a land mass such as Europe efforts at the individual national level will vary from country to country. Some regional "oversight" could be helpful wherein regional and international organizations cooperate.

Species under threat

8. Of the species listed in para. 2, available evidence suggests 3 are rare with significantly limited distributions. These are Malus florentina, Prunus brigantina and P. ramburii. All three are found in Southern Europe. It would seem logical that field surveys should be initiated for these species.

Relationships between the species and cultivars

9. The species studied fall into 3 main groups:
 - (i) spontaneous populations of cultivated species
 - (ii) widespread wild species with putative or known introgression with cultivated species
 - (iii) widespread wild species with no apparent introgression with cultivated species

10. The first group includes materials introduced in historical times, sometimes relatively recent in the case of northern Europe. Naturalized populations, because of their closeness to cultivated material could be valuable for study both in situ and ex situ in field genebanks (collections) of breeders e.g. those on the periphery of distribution (usually the marginal areas of cultivation): Malus domestica, P. armeniaca, P. domestica, P. dulcis and P. persica.
11. The second group includes many indigenous species which have probably introgressed from time to time with cultivars or are related to their origin: Allium ampeloprasum, A. schoenoprasum, Bromus inermis, Festuca arundinacea, Malus sylvestris, Prunus avium, P. cerasifera, P. cerasus, and P. spinosa. Since they are mostly widespread it is to be expected that they are to be readily found in protected areas. Descriptor list for characterization of highly heritable characters apparent in a wide range of environments could be developed and data computerized.
12. The third group includes Prunus mahaleb, P. prostrata, and others. Distribution patterns vary from widespread to more localised. Several of the fruit species are of interest as rootstocks.

Subregional distributions

13. Many species show distribution patterns limited to southern Europe. Priorities for field survey would be the following:

Highest: Turkey, Greece, Italy and Yugoslavia

Lower: southern France, Bulgaria, Switzerland, Spain, Israel

National programmes of these countries should consider field survey and planning of in situ reserves because of the potential for future use of the materials.

14. In the countries listed in para. 13, and in others, special attention should be paid to species which are likely to be under some threat due to environmental changes. These would be specifically:

(i) loss of diversity due to loss of small woodlands and hedges (spontaneous population of Prunus and Malus and some relict distribution of indigenous wild species)

(ii) loss of diversity due to draining of wet lands (Allium, Festuca ecotypes)

APPENDIX V cont.

RESERVES IN COUNTRIES

Albania

There are few current data on protected areas in Albania available. There are four internationally recognized national parks and reserves.

Austria

The protected areas over 500 hectares in size which are within the general distribution of these species are noted on the maps. Botanical inventories of these reserves are coordinated by the Institute for Environmental Sciences and Nature Conservation, the Austrian Association for Nature Conservation and the World Wildlife Fund - Austria (all headquartered in Vienna).

Belgium

There are well over 50 small nature reserves scattered throughout the country. There are three categories of protected areas. Many of the reserves contain highly altered vegetation and it can not be assumed that the species are adequately protected in the present network of protected areas. Because the reserves are so close together, they cannot be shown individually on the map. Botanical inventories and park management programmes are coordinated by the Nature Conservation Service of the Water and Forests Administration.

Bulgaria

There is an extensive network of protected areas including numerous biosphere reserves. However three quarters of these are above 1600 m in elevation. Coordination of botanical inventories of the biosphere reserves and other protected areas involves the MAB National Committee of Bulgaria.

Cyprus

There is a modest network of protected areas though many important sites are not protected.

Czechoslovakia

There is a modest number of nature reserves, national parks and biosphere reserves in Czechoslovakia. To obtain information for botanical inventories as well as to make proposals for additional field studies, the MAB National Committee should be contacted.

Denmark

There are over 11 important protected areas though it is likely that few of these contain the habitat types necessary for the species. The Danish Ministry of Environment coordinates work related to botanical surveys and reserve management. It also may have species inventories of other natural sites which may have populations of some of the species.

Finland

There are a number of protected area categories including strict nature reserves, national parks, protected peatlands, virgin forests and nature management areas. Some of the larger reserves are shown on the maps. Information on these reserves, including any botanical inventories, could be obtained through the Ministry of Agriculture and Forestry's Bureau of Natural Resources and the Ministry of Environment's, Environmental Conservation Division.

France

There is an extensive network of national and regional parks as well as locally controlled reserves. Botanical surveys of these areas have usually involved the Directorates of Nature Conservation (for national parks) and the Department of the Quality of life for regional parks) of the Ministry of Environment. The National MAB Committee is also concerned with in situ conservation of genetic resources as well as the Genetic Resources Bureau of the Ministry of Research.

There is an extensive cluster of protected areas in Corsica. It includes a regional park, national parks and a biosphere reserve (Forêt Domaniale du Fango). Surveys of the island are coordinated through Dr. Olivier and the MAB National Committee of France.

Greece

There are still critical needs for additional protected areas. There are over 10 national parks and a growing number of smaller reserves. To determine whether any of the species occur in any of the protected areas, it would be necessary to contact the respective park managers, the Greek Forest Service and the MAB National Committee. The local MAB network is probably the best initial contact for proposals for field surveys.

Federal Republic of Germany

There are over 1,000 nature reserves of which over 50 are greater than 500 hectares in area (shown on enclosed maps). Many of the smaller reserves are privately owned. Each protected area is administered from one of four levels: federal, state, regional and local. There are nature conservation institutes in each state and they coordinate research on respective reserves. These institutes, as well as the Federal Ministry for Food, Agriculture and Forestry and the MAB National Committee, already have extensive data on the plant species which exist within each reserve.

German Democratic Republic

There is an extensive network of nature reserves as well as two biosphere reserves. The Institute of Landscape Research and Nature Conservation has already surveyed many of these reserves. It could provide data on occurrences of particular species as well as consider proposals for additional field studies.

Hungary

There are over 750 protected areas with over 133 under national protection as national parks, landscape protected areas and nature conservation areas. The remainder are locally controlled nature conservation areas and "natural assets". The larger protected areas are shown on the map. There are several biosphere reserves. To obtain information on botanical surveys of natural areas, as well as to make proposals for additional field work, it would be necessary to contact the Hungarian Department of Nature Conservation plus the MAB National Committee.

Ireland

There is a modest network of national parks and nature reserves. The larger parks are under the jurisdiction of the Office of Public Works and the nature reserves are managed by the Department of Fisheries and Forestry. There are two biosphere reserves. Information on where species occur in the network can be obtained from, and proposals for additional field surveying can be directed to these two agencies plus the MAB National Committee.

Israel

There is an extensive network of small reserves and national parks. Most are administered under either the National Parks Authority or the Nature Reserves Authority. The protected areas of Israel have been well-surveyed for plant species and a number of wild species in crop gene pools have been the subjects of a number of papers. Professor Zohary of University of Jerusalem is the expert with the greatest breadth of knowledge.

Italy

There are over 30 biosphere reserves, national parks, strict nature reserves and managed nature reserves. Some of these have been established for the conservation and procurement of genetic resources. However, many species and plant communities in Italy are not represented in any of these reserves. Administration of protected areas was at the national level but has shifted to the regions. Much of the surveys, advocacy and implementation for plant conservation has been done by non-governmental groups notably, World Wildlife Fund - Italy and Italia Nostra. The MAB National Committee and the Italian National Research Council (Consiglio Nazionale delle Ricerche) could supply more information.

Luxembourg

There is an extensive network of nature reserves all of which are under 500 hectares in area. Over half of the total area of the country is in some form of protection. The country is active in the Council of Europe's biogenetic reserves programme. The National Conservation Council and the Department of Water Resources and Forestry, as well as local nature conservation associations, have done extensive botanical surveys throughout the country. They should be contacted in regards to species as well as for proposals for additional field studies.

Netherlands

There are over 800 tiny, protected natural areas throughout the country. Many of these comprise artificial landscapes. The Institute for Nature Management (Rijksinstituut voor Natuurbeheer) has done extensive surveys throughout the country and could be contacted for information on the distribution of species.

Norway

There are 15 national parks and over 400 nature reserves in Norway. However, the lower elevations in the southern part of the country, where populations of the species of interest to this report are most likely to occur, are under-represented. There is a Council for the Conservation of Nature and a Nature Conservation and Open-air Recreation Department in the Ministry of Environment. Both have botanical data and could be contacted for information on species and proposals for further surveying.

Poland

There is a modest network of biosphere reserves, parks and nature reserves. Most are in the higher elevations. Administration is through the Nature Conservation Office of the Ministry of Forests and Timber Industry. There is a Nature Protection Institute which may have information on botanical surveys. This institute plus the MAB National Committee could be contacted with any proposals for further surveying.

Portugal

There is a modest network of national parks and nature reserves. Administration is under the National Service for Parks, Reserves and Heritage Landscapes of the Department of Environment as well as the Forest Service. There is involvement in the Council of Europe's network of biogenetic reserves. The Department of Environment could be contacted for information and proposals for field studies.

Romania

There are at least 26 biosphere reserves, national parks and nature reserves. Requests for information from botanical surveys and proposals for additional field research could be directed to the MAB National Committee of the Academia Republicii Socialiste Romania.

Spain

There is a modest network of biosphere reserves, reserves of scientific interest, national parks, and natural parks. Some of these areas are monitored by ICONA, the National Institute for the Conservation of Nature. There is an extensive, on-going survey of natural areas. For information on occurrences of species as well as to make proposals for additional field studies, ICONA and the MAB National Committee should be contacted.

Sweden

There are currently 70 national parks, nature reserves and protected landscapes which conform to UN/IUCN criteria and another 1700 areas which are not so strictly protected. It is an impressive network and there has been care to make it representative of communities and species. There have also been extensive botanical surveys of the natural areas of Sweden. To obtain information on a species or to propose additional field study, the Research Committee of the Nature Conservation Section of the National Swedish Environment Protection Board should be contacted.

Switzerland

There is an extensive network of protected areas with over 72 of them more than 500 hectares in size. However these are mainly higher elevation areas where these species cannot occur. Protected areas are usually administered by the local Canton. In the last two decades, all natural areas in Switzerland have been well inventoried and this data is available from authorities of Cantons. The Swiss League for the Protection of Nature and the World Wildlife Fund-Switzerland have been two of the most active conservation organizations.

Turkey

In comparison to its wealth of plant genetic diversity, particularly of crop gene pools, there is not a fully comprehensive system of protected areas. There are 17 national parks plus hundreds of mostly tiny reserves.

Protected areas are administered by the Ministry of Forests. Botanical surveys have been tentative with numerous areas poorly known. Requests for information from botanical surveys as well as proposals for field studies could best be directed through the University Botany Departments in or involved with Turkey, IUCN contacts and the Ministry of Forests.

United Kingdom

The network of protected areas in the UK is the most extensive in Europe. The bulk of in situ conservation efforts in the British Isles, which would be considered worthwhile, would simply consist of identification of sites, monitoring and germplasm evaluation. From these data might emerge cognizance of special management needs for respective populations which could be communicated to reserve managers. This is probably the case, to a lesser degree, for all of northern Europe.

There are over 200 national parks and national nature reserves or equivalent areas in England, Scotland, Wales and Northern Ireland. There are also thousands of sites of Special Scientific Interest, local Nature Reserves and Reserves of Voluntary Organizations. Their administration and respective ownership and jurisdictions are highly complex and varied. There are a number of on-going research efforts for these reserves. The Natural Environment Research Council is a repository for biological data on natural areas in the country. It could be contacted with specific requests for information and with proposals for additional field studies.

European USSR

There is an impressive system of biosphere reserves and various categories of nature reserves. The conservation of genetic resources, in particular wild relatives of crops, has been a focus of the Soviet Biosphere Reserves Programme since the late 1960s. The All Soviet Institute of Nature Reserves, with which the IBPGR is already in contact, coordinates research and already has conducted extensive botanical surveys.

Yugoslavia

There is a modest network of biosphere reserves, national parks and nature reserves. However, on the basis of preliminary information, it can be assumed that many species and community types are under-represented and experiencing serious loss of habitat. Protected areas are managed through the Republics. There is a nature conservation institute in each of the six republics. The MNB National Committee is probably the best initial contact from which to obtain botanical survey data and to which proposals for field studies could be directed.

APPENDIX VI

EUROPEAN COOPERATIVE PROGRAMME FOR THE
CONSERVATION AND EXCHANGE OF CROP GENETIC RESOURCES (ECP/GR)

REPORT OF THE EVALUATION PANEL OF PHASE II OF ECP/GR
ENDORSED BY THE TCC ON 19 DECEMBER 1985

Introduction

The project document provides for an evaluation to be carried out by representatives of participating Governments, UNDP/FAO and IBPGR after the end of the second year of the Project. For reasons of cost-effectiveness it was proposed by UNDP, with the agreement of IBPGR, that the TCC at its meeting in Iceland, December 1985, could nominate a small panel, which drawing on the discussions of its meeting, could produce an Evaluation report on Phase II of ECP/GR. This report, which follows, has been endorsed by the Full Technical Consultative Committee.

The members of the Panel were:

J.H.W. Holden (IBPGR Rapporteur)
Ch. Lehmann (German Democratic Republic)
J.P. Prins (UNDP)
J. Valkoun (Czechoslovakia)
L. van Soest (Netherlands)
J.T. Williams (representing FAO and the Board of IBPGR)
R. Schachl (Austria) attended part of the meeting.

Achievement of Objectives

A. Development Objectives

These are defined inter alia in the Project Document as the establishment of "a network of cooperation between Institutes and sub-regional groupings in Europe."

Experience gained in operating this project was parallel to that gained in other similar regional projects of IBPGR and it has shown that the most effective focus for cooperation is the crop and the natural unit of organization is the crop working group. Regional or political groupings are indeed of use in furthering the work of the programme but the agricultural and biological reality in a genetic resources context is the crop or species group and the Evaluation Report of Phase I of ECP/GR has been shown to be correct in recommending action through crop working groups. Of the twelve crops or crop groups which it recommended for attention, six were selected for Phase II, namely, Barley, Allium, Forage Grasses and Legumes, Prunus, Avena and Sunflower.

Operation of the programme has revealed that the critical factor in the achievement of objectives is the degree of cooperation which has occurred between Institutes within countries and between countries. It has become equally clear during Phase II that the single most important constraint to this cooperation relates to the level of support-in-kind provided by national governments either as financial resources, facilities or staff support. All participating governments formally committed themselves to the provision of inputs in-kind but in many cases this principle has not been translated into the most effective support at the institute level.

Other development objectives were "the maintenance of comprehensive, well documented collections of crop genetic resources" and "encouraging closer links between genetic resources personnel". Substantial progress has been made towards these goals as will be discussed in detail later in this report.

With regard to "encouraging more effective use of plant genetic resources and closer links between genetic resources personnel and those who use the resources", this is seen as a logical development of the documentation, characterization and analysis of collections (which have been major activities of Phase II), and in general should therefore follow in Phase III.

B. Immediate Objectives

Four immediate objectives were assigned in part B of the Project Document. The same numeration that in the Project Document is used below to assess progress on each of them.

1. To create a system to facilitate:

1a) Establishment of contacts and working relationships between institutions and workers. This has been done through the setting up of Working Groups of experts in the particular crops and by the appointment of country coordinators to ensure the necessary linkages between curators of national collections (often several in each country) and the Working Groups; and the central data bases for the crop or crop groups. In one special case i.e. Prunus, which includes five crops - Almond, Cherry, Plum, Peach and Apricot, plus the wild species - two crop coordinators were also appointed, one each in eastern and western Europe. While the specialist crop coordinators have been active and effective in their work, the effectiveness of the country coordinators has been more variable. However, it was noted that majority of the IPF Country Coordinators took their responsibility seriously. In addition, contacts were fostered by the ECP/GR through training activities which took the form of working visits by individuals to institutes with recognized expertise in particular fields, or by workshops for groups on technical aspects of conservation, regeneration or data handling by computer. This result was additional to the fulfillment of their primary function of raising the level of scientific and technical expertise. The development of informal, personal relationships is of great importance to the smooth and effective working of a collaborative programme of this kind and should continue to be encouraged in Phase III.

1b) The facilitation of unhindered exchange of crop genetic resources. While occasional difficulties have been encountered, in general it can be said that no significant barriers exist to the free exchange of germplasm between the cooperating countries of the ECP/GR. While Phase II has accelerated the process of germplasm exchange, more progress can be expected in Phase III and beyond, following the production of comprehensive crop inventories and the move towards the rationalization of collections; both stemming from the work of Phase II.

- 1c) The establishment of information and documentation systems and the facilitation of data exchange between genebanks. Progress in this area has been considerable (see para 1 of TCC report) and to a considerable degree this can be attributed to the commitment of workers who, in response to the recommendations of the Crop Working Groups established European Crop Data Bases. They have had to overcome serious problems in understanding, interpreting and transcribing data in various formats supplied to them by curators of collection, and employing diverse terminologies and descriptors.

The development of documentation and information systems initiated by ECP/GR is central to most other aspects of genetic resources work and delays in meeting deadlines in this work can have serious repercussions on the rationalization of collections (by mutual agreement of curators holding similar materials); on the planning of selective collecting; on characterization and hence on utilization. The frequent lack of adequate support at the national level is partly responsible for the different rates of progress among the central data bases.

A successful workshop on the problems of data processing and exchange was held at the Plant Acclimatization Institute, Radzikow, Poland in 1984, where problems were analysed and standard working procedures were established. This provided clear guidelines in order that the objective of ECP/GR and the targets set by the Working Groups could be met.

Central data bases have discovered that many accessions in collections lack any significant data. This is particularly true of early accessions in long established genebanks. However, when the same material occurs in more than one collection it is possible that data from one may be provided to another through the central data base acting as an information clearing house. This benefit has been noted on numerous occasions.

All central data bases had produced preliminary inventories for their crops or crop groups by December 1985, but in general much remains to be done before definitive inventories, incorporating, as appropriate, full available passport and characterization data, can be published. It recorded that all CDBs could estimate that from December 1985, the time needed for completion of the Phase II data base targets will be: barley 2 years, Avena 1 year, sunflower 1 year, Forages 1 year, Allium 1 year and Prunus 1/2 year. To a considerable extent, these delays result from over optimistic estimates by the Working Groups, which, in their path-breaking work, had no prior experience upon which to draw. The Evaluation Panel recognises that the problems facing each CDB differed both in terms of numbers of samples (more than 50,000 in one case; ca. 3000 in another) and in the willingness of curators to supply data in the required format. The Panel, taking these factors into account, is satisfied with the progress made. In no case were the collaborators in the CDBs or the Secretariat negligent in attempting to fulfill the recommendations of the six Working Groups.

- 2) Likewise the provision of information on material in collections to all interested plant scientists, which has begun as a positive activity in Phase II, will continue at an increasing rate following the completion of the documentation work. Greater efforts should be made to bring this information more to the notice of the scientific community during Phase III, as a first step in promoting the greater utilization of the germplasm.

The Secretariat was active in Phase II in presenting the work of ECP/GR to six international scientific congresses/meetings and a brochure on the aims and organization of ECP/GR was published and circulated to 700 workers and organizations in Europe.

Consideration should be given to widening the collaborative activities of the ECP/GR. For example, the increased awareness of the work in Phase II has led to a wish by representatives of major data bases in the International Agricultural Research Centers and in developing countries, to participate in Phase III activities. The Evaluation Panel noted with satisfaction the collaboration established in Phase II between ECP/GR and national programmes in Ethiopia, the Near East and North Africa. It was also noted that two European countries, not members of the project, namely Romania and the USSR, collaborated in several activities. Continued presentations of the results of the activities of the Working Groups, to appropriate international scientific meetings, should be encouraged. In these ways effective links could be consolidated between the crop groups of ECP/GR and the numerous relevant workers in other parts of the world, to their mutual benefit.

With regard to countries which originally provided material to European collections, or who may have participated in joint collecting expeditions, the data bases of the ECP/GR should recognize an obligation to offer them the characterization data obtained on that material. It is noted with satisfaction that plans are now in hand for the repatriation of much material to countries of origin. Further development of this kind should be encouraged whenever facilities for its safe storage exist in the country of origin. The apolitical umbrella of IBPGR, the partner of UNDP in operation of Phase II, has been of considerable advantage in establishing these international collaborative arrangements.

3) To establish, for specific crops of major economic importance, joint activities including:

3a) The organization of expeditions to collect genetic variation not held in existing collections, must await the full registration of these collections in the central data bases, and the analysis of the data to determine eco-geographic gaps. This work therefore, will occur during Phase III. Certain rescue collecting of material under severe threat has been done however in Phase II, to preserve material in Prunus, Avena, Forage grasses and legumes and Allium in accordance with the recommendations of the various Working Groups (see Table 1). The Evaluation Panel noted that of the recommended collecting missions the following percentages had been either started or completed: Prunus 60; Forage 40; Avena 50; Allium 30. The relatively low percentage success in Allium is attributed to the non-availability of expected funds from the EEC and the Evaluation Panel notes with regret the failure of several member governments to absorb these responsibilities as inputs-in-kind. In other cases countries have either failed to respond or alternatively have been active in some crops but not in others. The Evaluation Panel interprets this uneven response to be due partly to a difference in enthusiasm between workers in their commitment to the aims of the project and partly to the varying time intervals between the publication of the recommendations of the Crop Working Groups and the end of Phase II. Nonetheless, the positive results shown in Table 1 are commendable and it is confidently expected this work will be largely completed in Phase III. It is recognized that the setting up of adequately prepared collecting expeditions takes time. The Technical Consultative Committee recognized the need for additional surveying and collecting in Avena, Forages, Prunus and Allium.

3b) With regard to characterization and evaluation the Evaluation Panel wishes to draw attention to a change of approach in the policy of IBPGR and the views of the genetic resources community. Whereas at the time of setting up of the Project these two activities were linked together as appropriate activities for genebanks, it is now recognized that most evaluation work is highly location specific and should be carried out by the breeders/institutes who intend to utilize the results obtained. The characterization of material by the scoring of highly heritable characters, with environment-independent expression, is seen on the other hand as an essential activity of curators in the identification of accessions leading to the determination of duplicates. This distinction has been recognized by the Working Groups in drawing up agreed lists of descriptors for their crops: much more attention has been given to characterization descriptors and these have been widely accepted (Forage grasses present a special problem: very few characteristics are independent of environment in their expression; this was clearly recognized).

Progress in characterization varies widely between crops. The Evaluation Panel recognized action taken on barley and Prunus; intended work in 1986 on sunflower, Allium and Avena. However, experience shows that expectations at the start of Phase II were unrealistic but work initiated will, without doubt, lead to substantial progress in Phase III.

4. With reference to the objective to create a self-sustaining network the Evaluation Panel considers that the CDBs and their collaborating institutes throughout Europe are in practice largely self-sustaining providing the network continues to receive adequate governmental support. Nonetheless some institutes still have to be drawn in but the basic framework is established and functional. Without ECP/GR this would not have occurred and must be regarded as a major achievement of Phase II. The crucial nodes in the network are the CDBs and the Evaluation Panel draws attention to the need for long-term commitment from Governments for their guaranteed support and continuity. Failure of a CDB could have serious implications for the future of genetic resources work on that crop.

The Evaluation Panel was of the view that the ECP/GR Secretariat, supported by IBPGR, played a central role in achieving the success noted above. This was also recognized by the TCC meeting in 1983. In Phase III, the need for the Secretariat, as a central focus for the programme will be undiminished. The Secretariat can be expected to function efficiently under the IBPGR umbrella while control will remain with the participating countries. The Evaluation Panel recognizes the benefits accruing to the ECP/GR from the accepted apolitical international status of IBPGR.

Constraints in meeting objectives

With reference to the reports of the Working Groups and the discussions of the TCC, the Panel identified a number of general constraints.

1. Undue delays in the return of data from curators to the Central Data Bases.
2. In the transfer of data much has been left to the interpretive powers of the curators of central data bases and more effort is required from curators in sending their data in standard format. This is identified as a major potential restraint in Phase III and greater inputs-in-kind are required to assist both curators and central data bases.
3. Frequently collaborative work for ECP/GR has been added to the existing work programmes of staff with the result that target dates are often missed despite the willing efforts of collaborating workers. It is recommended that Government intentions should find practical expression in budget increases - often quite modest in size - so that objectives are achieved more rapidly in Phase III.
4. In some cases the country coordinators were not fully informed by the Secretariat and this should be rectified in the future.
5. Consideration should be given to ways of encouraging the more active participation of some country coordinators in Phase III. The Evaluation Panel is of the opinion that the country coordinators have an important part to play in facilitating the work of the programme by encouraging data flow to central data bases and by ensuring information flow between national programmes in collaborating countries and the ECP/GR.

6. Although not recognized at the beginning of the project, national quarantine regulations are clearly an impediment to the exchange of germplasm of vegetative material. Of interest to this project are Prunus and some forms of Allium. The TCC requested the respective Working Groups to investigate the merits and feasibility of third-country quarantine.

Inputs in-Kind

The main conclusion of the Evaluation Panel was that government inputs in kind as estimated in the project document were met in full.

Project Personnel

The five itemized activities in the Project Document had been accurately specified but grossly underestimated in terms of the man/month requirements. The Evaluation Panel was heartened by the response of Governments in fulfilling their obligations as defined in the Project Document but draws attention to the fact that as the programme developed and more support was needed, particularly in the form of personnel and infrastructure, national authorities were unable to meet those needs. The Evaluation Panel is aware that the significant progress achieved in some data bases is largely attributable to the devoted efforts of individual members of staff. The Panel hopes that, having highlighted this major constraint, participating Governments will take steps to provide the additional inputs-in-kind to critical activities, for the sake of general progress.

Training.

With regard to both individual fellowships and workshops, Governments had met their commitments. The Panel notes that only a limited number of Governments have been responsible in fulfilling the collective obligations of all members countries. It is worthy of note that 3 IPF countries played an important role in this activity.

Equipment and premises.

Although it is difficult to estimate the approximate inputs, the Evaluation Panel is satisfied that collectively these obligations have been met to the extent defined in the project document.

Miscellaneous.

Participating countries have been involved in considerable expenditures related to information exchange between the 26 countries through print-outs, photocopied reports as well as normal miscellaneous expenses such as postage, telephone, telex and cable expenditures.

Cost sharing

Concerning the IPF Governments' cost-sharing, 8 out of 9 countries had paid their contributions by 1 December 1985.

Contributions through IBPGR

Table 2 shows the schedule of payments of the member countries against the commitment. It was noted that 7 countries had not paid all their amounts by 1 December 1985 and one of these had not paid anything at all in Phase II. Information available suggests that most of the outstanding balance of \$48,000 will be received before the end of Phase II. Nonetheless the Panel views this with concern. Were it not for the fact that the Executive Secretary has been able to temporarily divert core IBPGR funds to meet shortfalls, on the understanding that they are reimbursed, the ECP/GR could have been in serious difficulties.

UNDP inputs

UNDP has met in full its obligations.

FAO/IBPGR inputs

The IBPGR has continued to provide direct technical and financial support to activities supporting the project. These have included collecting missions, provision of hardware and software, training, characterization, travel and additional staff time. These inputs exceed the estimate by approximately 25%.

Timing of the ECP/GR

Since Phase I was completed in December 1982, Phase II should have commenced early in 1983. In fact, Phase II unofficially began in June 1983 (although officially agreed in June 1984). The expenditures June 1983 to May 1984 were met by IBPGR against subsequent reimbursement and sanction was received from UNDP for expenditure of their contributions starting June 1984. These delays were due to time taken for UNDP and FAO to reach agreement on the details of the project document.

Conclusions

The Evaluation Panel expresses its general satisfaction with the progress achieved during Phase II in establishing ECP/GR on a firm scientific/technical basis and in the achievements recorded in the 1985 report of the TCC. This clearly permits the Panel to fully endorse the proposals for continuation of ECP/GR into Phase III. It notes, with approval, the intention to retain the Working Groups which met during Phase II, after a review of priority crops. This will permit the consolidation and completion of the active programmes with which they are engaged. The Panel also endorses the wish of Governments that IBPGR should continue in its role of administration and leadership.

Table 1

Collecting missions during Phase II

	<u>Countries</u>	<u>Action</u>	<u>Funding</u>
<u>Prunus</u>	France	initiated	input--in--kind
	Greece	initiated	IBPGR
	Italy	initiated	input--in--kind
	Romania	initiated	national programme
	Spain	initiated	input--in--kind
	Turkey	continued	input--in--kind
	Yugoslavia	initiated	IBPGR
<u>Forages</u>	Netherlands	initiated	input--in--kind
	UK	continued	input--in--kind
	Greece	continued	IBPGR
	Sweden/Finland	continued	input--in--kind
	Belgium	initiated	input--in--kind
	Israel	initiated	IBPGR
<u>Avena</u>	Spain/Canaries	completed	IBPGR
	Morocco	completed	IBPGR
<u>Allium</u>	Hungary	continued	input--in--kind
	Turkey	initiated	input--in--kind
	Nordic Countries	initiated	input--in--kind
	Yugoslavia	agreed 1986	IBPGR
	Poland	agreed 1986	input--in--kind
	Israel	initiated	IBPGR
<u>Sunflower</u>	USA (wild material)	initiated	IBPGR

Table 2

Cost sharing schedule of payments Phase II

<u>Country</u>	<u>Amount committed</u>	<u>Amount received</u>	<u>Amount outstanding 1 Dec. 1985</u>
Austria	11,446	5,524	5,922
Belgium	11,446	11,446	
Denmark	11,446	11,446	
Finland	5,723	3,891	1,832
France	28,615	18,723	9,892
German D.R.	11,446	11,446	
Germany, F.R.	28,615	28,615	
Iceland	2,862	1,381	1,481
Ireland	5,723	5,723	
Israel	5,723	5,723	
Italy	28,615	28,615	
Netherlands	11,446	11,446	
Norway	5,723	2,762	2,961
Spain	11,446	11,439	
Sweden	11,446		11,446
Switzerland	11,446	5,524	5,922
United Kingdom	28,615	19,455	9,160
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	231,782	183,159	48,616

